



Data Sheet 5

Memory upgradable to 256MB

April 1994

The Acorn Risc PC can be fitted with up to **256MB** of DRAM (plus 2MB VRAM). RISC OS itself has been extended to handle up to 256MB in software to cover future hardware developments. 28MB is available as execution space for each application being run, though all available RAM can be used for data if required. When VRAM is fitted to a Risc PC, and the computer is running in screen modes which do not require it, **the VRAM is available to the operating system as additional Main Memory when not used by video display.**



Acorn 

Memory hardware

The Acorn Risc PC is the first RISC OS platform to allow Single In-line Memory Modules (SIMMs) to be fitted to support DRAM. Two SIMM sockets are provided and any combination of standard 70 ns or faster 32-bit SIMMs is possible, with either of the sockets left empty. Each SIMM socket is a standard 32-bit wide 72-way connector.

A special Application Specific IC, IOMD, provides for a maximum memory capacity of 256MB. The Acorn Risc PC is capable of using 256MB, but SIMMs of sufficient capacity are not yet commercially available. SIMM are currently available up to 32MB each allowing easy upgrade to 64MB in a system.

The diagram overleaf shows the maximum physical space available for a SIMM in the Acorn Risc PC; the majority of 'off the shelf' memory modules will be somewhat smaller than this. If a memory capacity in excess of that available from commercial SIMMs is required, a custom module may be constructed using these maximum dimensions. Contact pads may be either gold or solder.

The DRAM must support 'fast page mode' and 'CAS before RAS' refresh.

The maximum loading on each signal is:

- Address 128pF
- WE 140pF
- CAS or RAS 59pF
- Data bus 29pF

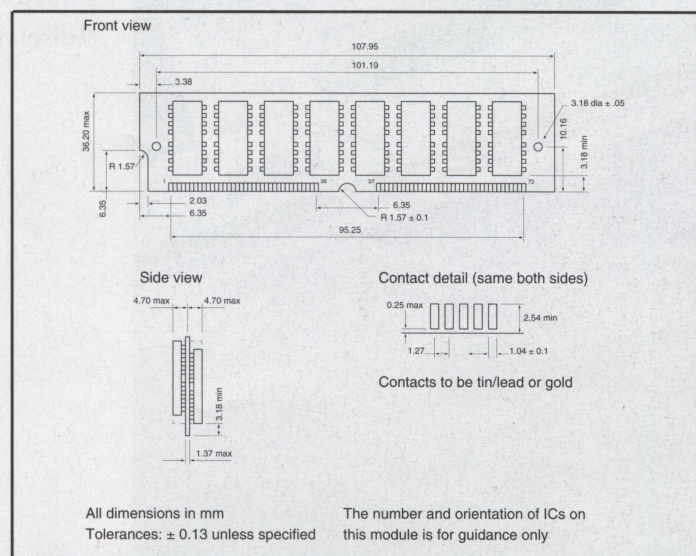
Software

RISC OS memory management in Version 3.5 has been extended in the following areas in order to provide support for the Acorn Risc PC:

- increased RAM sizes (up to 256MB DRAM + 2MB VRAM)
- allocation of memory to second processors
- ARM600 MMU page table allocation (page size reduced to 4KB)
- logical memory map extended to full 32-bit address space.

In RISC OS 2 and 3, the memory management task was divided between the kernel and the Wimp module. The kernel ordered the memory into dynamic areas and an application space, but the Wimp required a free pool and multiple application spaces, rather than just the one application space which had all spare memory in it. For the Risc PC, the free pool management has been moved into the kernel so that there is no longer a conflict between the kernel and the Wimp. The Wimp will still manage the multiple application spaces - the Wimp being the module responsible for constructing and managing tasks in the desktop.

RISC OS is able to detect automatically the amount of RAM fitted, so you don't need to change the configuration in software or set links on the PCB.



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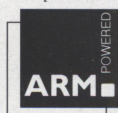
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